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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/577,988

Applicant(s)

AOYAMA ET AL.

Examiner

EUGENIA WANG

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 03 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-12 is/are rejected.
- 7) ☒ Claim(s) 3-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)
Paper No(s)/Mail Date 5/3/06, 9/15/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ ~~Notes of Informal Patent Application~~
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 2 and 13-20 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions/species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on December 3, 2009.

Response to Arguments

2. Applicant's election with traverse of Group I (claims 1 and 3-12) in the reply filed on December 3, 2009 is acknowledged. The traversal is on the ground(s) that this is not a serious burden to search claims of the entire invention. This is not found persuasive because as set forth in the original restriction requirement, different special technical features are present in each of the group, wherein examination of the entire application would require the examination of three different inventions. It is unsure how searching for different inventions (for example, a search directed towards a specified method and a search directed that directed towards an apparatus) would not constitute a burden. Applicant has not provided any reasoning or proof as to how the search for these separate inventions as set forth in the original restriction requirement would not be a burden, thus the requirement is still deemed proper and is therefore made FINAL.

Preliminary Amendment

3. The preliminary amendments received May 3, 2006 and June 7, 2006 are acknowledged.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

5. The information disclosure statements filed May 3, 2006 and September 15, 2006 have been placed in the application file and the information referred to therein has been considered as to the merits.

Drawings

6. The drawings received May 3, 2006 are acceptable.

Specification

7. The disclosure is objected to because of the following informalities: in paragraph 0002, lines 2-3 having a sentence that is grammatically incorrect - "For example, teaches a fuel cell wherein a palladium series metal film is disposed on the anode side of an electrolyte layer having proton conductivity is known".

Appropriate correction is required.

Claim Objections

8. Claims 3-12 are objected to because of the following informalities: using the word "Claim" to refer to previous words, wherein such capitalization occurs in the middle of a sentence and is thus grammatically incorrect. The use of 'claim' should be used instead. Appropriate correction is required.
9. Claims 4-5 are objected to because of the following informalities: using the phrase "fuel cell has stop" in lines 2-3, wherein Examiner submits that the past tense of

the word stop (stopped) should be used for grammatical correctness. Appropriate correction is required.

10. Claim 5 is objected to because of the following informalities: having a "4" in line 2, wherein Examiner submits that the "4" referring to claim 4 should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1 and 3-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 recites the limitation "the anode side" in lines 4, 6, and 9. There is insufficient antecedent basis for this limitation in the claim. Since claims 3-12 are dependent on claim 1 and fail to rectify the issue, they are rejected for the same reason.

b. Claim 1 recites the limitation "the event that the purge decision unit decides that the purge condition is met" in lines 10-11. There is insufficient antecedent basis for this limitation in the claim. Since claims 3-12 are dependent on claim 1 and fail to rectify the issue, they are rejected for the same reason.

c. Claim 1 recites the limitation "the event that the purge decision unit decides that the purge condition is not met" in lines 12-13. There is insufficient

antecedent basis for this limitation in the claim. Since claims 3-12 are dependent on claim 1 and fail to rectify the issue, they are rejected for the same reason.

d. Claim 3 recites the limitation "the basis" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. Since claims 7 and 12 are dependent on claim 3 and fail to rectify the issue, they are rejected for the same reason.

e. Claim 3 recites the limitation "the operational status" in line 3. There is insufficient antecedent basis for this limitation in the claim. Since claims 7 and 12 are dependent on claim 3 and fail to rectify the issue, they are rejected for the same reason.

f. Claim 3 recites the limitation "the power" in line 4. There is insufficient antecedent basis for this limitation in the claim. Since claims 7 and 12 are dependent on claim 3 and fail to rectify the issue, they are rejected for the same reason.

g. Claim 5 recites the limitation "the pressure" in line 3. There is insufficient antecedent basis for this limitation in the claim. Since claim 6 is dependent on claim 5 and fails to rectify the issue, it is rejected for the same reason.

h. Claim 5 recites the limitation "the fuel gas flow passage" in line 4. There is insufficient antecedent basis for this limitation in the claim. Since claim 6 is dependent on claim 5 and fails to rectify the issue, it is rejected for the same reason.

- i. Claim 6 recites the limitation "the outlet" in line 3. There is insufficient antecedent basis for this limitation in the claim.
- j. Claim 8 recites the limitation "the level" in line 3. There is insufficient antecedent basis for this limitation in the claim. Since claim 9 is dependent on claim 8 and fails to rectify the issue, it is rejected for the same reason.
- k. Claim 8 recites the limitation "the power" in line 3. There is insufficient antecedent basis for this limitation in the claim. Since claim 9 is dependent on claim 8 and fails to rectify the issue, it is rejected for the same reason.
- l. Claim 11 recites the limitation "the state of charge" in line 2. There is insufficient antecedent basis for this limitation in the claim.
- m. Claim 11 recites the limitation "the operating of shutting off power generation" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1, 3-6, and 8-9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 2004/0126628 (Balliet et al.).

As to claim 1, Balliet of a fuel cell system having a fuel cell [12] having a proton exchange membrane as the electrolyte (para 0017; fig. 1). It is noted that protons are transported through the electrolyte (and thus the electrolyte layer is proton-conductive)

(para 0027, lines 16-24). Furthermore, it is noted that the anode [14] (next to electrolyte [18]) is embodied to be for example platinum, platinum alloy, or metal black catalyst (para 0008; para 0018; fig. 1). This (anode [14]) is taken to be the hydrogen-permeable metal layer, as hydrogen is directed towards it and it is porous, as indicated by the fact that hydrogen ions are transported through the anode (para 0027, lines 16-24). In this manner, the layer must be somewhat hydrogen-permeable (due to the fact that hydrogen is directly contacted in such a manner that hydrogen ions are transported through it), barring specification as to a degree of permeability. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22, 13 USPQ2d, 1320, 1322 (Fed. Cir. 1989).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the

allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

In the case of the instant application the basis for expectation of inherency is that hydrogen is directly contacted with the anode [14] in such a manner that hydrogen ions are transported through it (indicating contact and porosity) (para 0027, lines 16-24). Thus, in some manner, since contact and porosity are shown, the anode [14] is at least somewhat permeable (for example on the surface to allow for the reaction to occur).

The Examiner invites applicant to provide that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product.

Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

As seen in fig. 1, there is a fuel source [40] (fuel gas feeder) that feeds to the anode side of the fuel cell (via anode flow field [28]. Furthermore, it is noted that oxidant source [42] (the oxidant does not have hydrogen) is connected to the anode via the path crossing valve [50], valve [63], and valve [62] (when valve [60] is closed, thus preventing hydrogen-containing gas from entering the fuel cell). It is noted that the composite structure as set forth above constitutes a purge gas feeder (as all are necessary for delivery of oxidant to the anode). It is noted that the valves (as shown in

fig. 1) are capable of being opening or closed by selection (para 0022-0025) (for non-limiting example, valve [50] is capable of being opened and closed to selectively permit or terminated hydrogen flow, as seen in para 0023). Furthermore, Balliet et al. recognizes operating in three modes (start up, normal, and shut down), wherein the valves are operated in certain manner (para 0027-0029). It is noted that this indicates some sort of control with respect to these different modes, as different valves are opened at different times, with respect to the modes. This is further supported, as Balliet et al. states that the valves can be controlled by a controller, which in one embodiment operates by sensing signals and responding with respect to sensed signals or sensed status of other valves with respect to opening and closing the valves (thus constituting a purge decision unit and purge controller) (para 0030, lines 17-35). In such a manner, since Balliet et al. teach of having operable valves (closed and open), being controlled to be opened and closed with respect to fuel cell operation modes, a control system, as applied to such valves is either (a) inherent or (b) at the very least obvious.

With respect to (a), the basis of inherency lies in the fact that the valves are present, wherein the valves are controlled with respect to the recognition of different fuel cell modes (as denoted in para 0027-0029, wherein a controller is specifically noted in para 0030, lines 22-25, wherein it is stated that signals as well as the status of over valves are sensed, showing the valves are connected via the controller). This indicates the presence of a controller in connected to the valves in order to control the valves, blowers, auxiliary loads as seen in fig. 1.

With respect to (b), alternately, if it is shown that Balliet et al.'s system, which recognizes different modes (normal, start up, and shut down, wherein the valves are opened and closed in different manners) and specifically notes a controller that can sense the status of all valves in order to control valve [63] (para 0027-0029; para 0030) does not utilize some sort of control system to control the valves, loads connections, and blowers in the prescribed manner, the implementation of such a controller would be obvious. The motivation for using a controller is in order to ensure accurate and precise operation of the fuel cell (in order to operate the valves in a prescribed manner for a functioning fuel cell depending on signals). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to connect the valves, blowers, auxiliary loads (as seen in fig. 1) to a controller (as set forth in para 0030, lines 22-25) in order to appropriately control the valves and thus fuel cell operation in a prescribed manner.

Therefore, in such a manner, Balliet et al.'s system (with respective valves seen in fig. 1 and means to control them, as set forth above to be either inherent or obvious) is capable of having the controller (purge decision unit) that, once power generation in the fuel cell stops, decides whether a purge condition under which the purge gas should be supplied to the anode side of the fuel cell is met and having the controller (purge controller) that in the event that the purge decision unit decides that the purge condition is met actuates the purge gas feeder to replace the fuel gas within the fuel cell with the purge gas, or in the event that the purge decision unit decides that the purge condition is not met, does not actuate the purge gas feeder. It is capable of providing such a

control, as the structure (valves with controller) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed.

It has been held that the recitation of an element is “capable” of performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

While intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See also MPEP § 2114.

The manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

As to claim 3, it is again noted that the structure of Balliet et al. (wherein the valves are connected via controller, wherein different modes are recognized such that different processes are applied, as set forth in the rejection to claim 1 to be either inherent or obvious) is capable of operating such that the controller's (purge decision unit's) decision is executed on the basis of prescribed information representing the operational status of the power supply system (fuel cell system of fig. 1) and/or prescribed information reflecting change in the power required by the power supply system. It is capable of providing such a control, as the structure (valves with controller) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

As to claim 4, it is again noted that the structure of Balliet et al. (wherein the valves are connected via controller, wherein different modes are recognized such that different processes are applied, as set forth in the rejection to claim 1 to be either inherent or obvious) is capable of operating such that the controller (purge controller) actuates the purge gas feeder once a prescribed time period has elapsed after power generation by the fuel cell has stopped. It is capable of providing such a control, as the structure (valves with controller) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

As to claim 5, Balliet et al.'s structure includes valves [60, 62, and 58] and blower [66]. This constitutes the pressurizing unit, as blower [66] is used to determine whether

or not gas is recycled and [58] closes the anode exhaust (and thus would cause pressure to rise when valves [60 and 62] are opened. Furthermore, the oxidant source [42] can be blocked from the anode using any combination of blower [52] and valves [50 and 63]. Accordingly the structure of Balliet et al. (wherein the valves and blowers are connected via controller, wherein different modes are recognized such that different processes are applied, as set forth in the rejection to claim 1 to be either inherent or obvious) would be capable of raising the pressure of the fuel gas in the fuel gas flow passage formed in the fuel cell after the fuel cell has stopped but while the purge gas supply portion is not actuated). It is capable of providing such a control, as the structure (valves and blowers with controller) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

As to claim 6, Balliet et al.'s structure includes valve [58] (part of the pressurizing unit), which closes/opens the anode exhaust would block the outlet of the fuel gas flow passage) as well as valves [60 and 62], which allows flow from the fuel source [40]. Accordingly the structure of Balliet et al. (wherein the valves are connected via controller, as set forth in the rejection to claim 1 to be either inherent or obvious) would be capable of raising the pressure of the fuel gas feeder to supply fuel gas while blocking the outlet. It is capable of providing such a control, as the structure (valves and blowers with controller) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

As to claim 8, it is noted that Balliet et al. teach of having a primary load [70], an auxiliary load [78], and diode [78], wherein current flow through the auxiliary load only happens when the voltage is greater than about 0.2 volts per fuel cell (para 0026, lines 15-19). Accordingly, Balliet et al. indicate that a voltage reading is appreciated. Furthermore, as set forth in the rejection to claim 1 to be either inherent or obvious, there is a controller controlling the valves, blowers, etc. Therefore, in such a manner, the system of Balliet et al. is capable commencing power generation by the fuel cell after the purge gas feeder has been actuated by using the fuel gas feeder to supply the fuel cell with fuel gas at a level in excess of the level corresponding to the power to be generated by the fuel cell (barring specification as to specification as to what the "level in excess" corresponds to). Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22, 13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). It is capable of providing such a control, as the structure (valves and blowers with controller and the recognition of power generated and delivered) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

As to claim 9, as set forth above (in the rejection to claims 1 and 8). Balliet et al.'s controller controls the valves/blowers/load connections, wherein voltage readings of the

fuel cells is specifically appreciated. Furthermore, it is noted that Balliet et al.'s controller is capable of responding to sensed signals (para 0030, lines 22-25). In such a manner the system of Balliet et al. is capable of controlling the fuel gas feeder (fuel source [40] with its accompanying valves [60] and [62]) with respect to the power generated by the fuel cell, such that when the power to be generated by the fuel cell is equal to or less than a prescribed value, it supplies the fuel gas at a level in excess of the level corresponding to the power to be generated or when the power generated is greater than the prescribed value supplies the fuel gas at a level corresponding to the power to be generated, barring specification as to what the prescribed values are. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22, 13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). It is capable of providing such a control, as the structure (valves and blowers with controller and the recognition of power generated and delivered) is capable of behaving in the claimed manner, and thus the structure of Balliet et al. meets the structure claimed. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

Claim Rejections - 35 USC § 103

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Balliet et al., as applied to claims 1 and 3, in further view of US 2004/0033395 (Thompson).

As to claim 7, Balliet et al. does not teach of a temperature sensing unit for sensing temperature at a prescribed location that is part of the power supply system and that operates at a temperature which rises to a prescribed high temperature during power generation by the fuel cell, wherein the purge decision unit decides that the purge condition is met as long as the temperature sensed by the temperature sensing unit does not go above a prescribed value.

However, Thompson teaches of having temperature sensor on the anode and cathode outlets [62, 66] to read the temperature of the fuel cell, wherein the sensors are connected to a controller and receive the temperature signals (fig. 2; para 0029). It is noted that control of the valves within the system are operated with respect to the temperature sensors and that temperatures read are compared to set reference temperatures (para 0041-0042). The motivation for including the temperature sensors of Thompson et al. would be recognize the condition of the fuel cell during start to prevent frozen start, to prevent overheating and damaging the MEA (para 0035) and in order ensure that the fuel cell is operating at a normal operating temperature (para 0042). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made use temperature sensors in conjunction with a controller in order to prevent frozen start, to prevent overheating and damaging the MEA, and in order to ensure that the fuel cell is operating at a normal temperature. Accordingly, in such a manner, the combination of Balliet et al. with Thompson would be capable of being programmed for the function as prescribed manner (sensing temperature at a prescribed location that is part of the power supply system and that

operates at a temperature which rises to a prescribed high temperature (any preset temperature, barring specification as to what "high" refers to) during power generation by the fuel cell, wherein the purge decision unit decides that the purge condition is met as long as the temperature sensed by the temperature sensing unit does not go above a prescribed value). It is capable of providing such a control, as the obviated structure (controller connected in obviated manner) is capable of behaving in the claimed manner. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

14. Claim 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balliet et al., as applied to claims 1 and 3, in further view of US 6,063,515 (Epp et al.).

As to claim 10, Balliet et al. do not provide a secondary cell to the fuel cell system.

Epp et al. teach the use of a secondary battery [306] (cell) for supplementing the power generated by the fuel cell (col. 11, lines 8-12). The motivation for providing a secondary battery to the teaching of Balliet et al. is to ensure that the load will still work even if the fuel cell does not provide enough electricity to it. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made combine a secondary battery with a fuel cell in order to guarantee that the load has enough power to run on.

As to claim 11, the combination of does not specifically teach of a state of charge sensing unit for sensing the state of charge of the secondary cell (battery), wherein in the event that the state of charge is equal or less than a prescribed value, charging of

the secondary cell is carried out using the fuel cell with priority over the operation of shutting off power generation by the fuel cell.

However, there is motivation for providing the state-of-charge measurement module. The motivation for providing such a module on the secondary battery is to ensure that the load has enough power to sustain the load. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to include the state-of-charge measurement module on the battery in order to provide the user of the load with a warning about battery replacement in order to ensure that the load will function. Furthermore, it is noted that since Epp et al.'s system says that the power of the battery is only used when the fuel cell generated power is not enough (col. 11, lines 8-12), a sort of determination control is inherently applied to the load, fuel cell, and battery to determine if the battery power is needed. Accordingly, in such a manner, the combination of Balliet et al. with Epp et al. would be capable of being programmed for the function as prescribed (wherein in the event that the state of charge is equal or less than a prescribed value, charging of the secondary cell is carried out using the fuel cell with priority over the operation of shutting off power generation by the fuel cell). It is capable of providing such a control, as the obviated structure (controller connected in obviated manner) is capable of behaving in the claimed manner. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

As to claim 12, Balliet et al. do not provide a secondary cell to the fuel cell system and does not have an output request acquiring unit for acquiring an output

request when the output request acquired is equal to or less than a prescribed value, the purge decision unit decides that the purge condition is not met and outputs power from the secondary cell.

Epp et al. teach the use of a secondary battery [306] for supplementing the power generated by the fuel cell (col. 11, lines 8-12). As Epp et al.'s system says that the power of the battery is only used when the fuel cell generated power is not enough, a sort of determination control is inherently applied to the load, fuel cell, and battery to determine if the battery power is needed. The motivation for providing a secondary battery to the teaching of Aoyama et al. is to ensure that the load will still work even if the fuel cell does not provide enough electricity to it. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made combine a secondary battery with a fuel cell in order to guarantee that the load has enough power to run on. Furthermore, the combination of Balliet et al. with Epp et al. would have the output request acquiring unit, as the battery in Epp et al.'s system inherently has an output request acquiring unit that receives an output request to the power system, wherein in response to the output request of not greater than a preset level, the power control module controls the secondary battery to output electric power. The support for this is stated within Epp et al.'s use for the battery – the fact that it is only employed when the demand (request) of electrical load [360] exceeds the output of the fuel cell stack [305] (col. 11, lines 8-12). As it talks about the demand (request) of load [360] and output of fuel cell stack [305], it inherently has an output request and module. In such a manner, the obviated structure (with controller connected in the

obviated manner) is capable of behaving in the claimed manner. Please see the rejection of claim 1 for the Office's position on functional limitation as applied to apparatus claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUGENIA WANG whose telephone number is (571)272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/E. W./
Examiner, Art Unit 1795

/Gregg Cantelmo/
Primary Examiner, Art Unit 1795